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Operations and Services

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WFO Non-Precipitation Weather Products Specification NWSI 10-515

EASTERN REGION NON-PRECIPIATION WEATHER (NPW) PRODUCTS

NOTICE: This publication is available at: <http://www.nws.noaa.gov/directives/>.

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SUMMARY OF REVISIONS: This is a routine update of ER Supplement 02-2011 (Eastern Region Non-Precipitation Weather Products). Changes include:

- 1) Streamlining verbiage with respect to probability thresholds and their relationship to Hazardous Weather Outlooks (HWOs), Watches, Warnings and Advisories (WWAs).
- 2) Cleaning up formatting issues.
- 3) Updating references to NWSI 10-515, WFO Non-Precipitation Products Specification.
- 4) Deleting verbiage regarding the use of the upper limit of sustained wind ranges to trigger advisories and warnings, as this verbiage is obsolete in the gridded forecast era.
- 5) Rewording the freeze and frost section for clarity and eliminated the 3 hour time requirement for ending the growing season.
- 6) Updated freeze date maps.

<signed>

9/22/14

Jason P. Tuell

Date

Director, NWS Eastern Region

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1. **Purpose.** This supplement adds detail to baseline national guidance on how to issue outlooks, watches, warnings and advisories for non-precipitation type weather (NPW) phenomena (wind, temperature and visibility) in Eastern Region (ER).

ER Weather Forecast Offices (WFOs) will issue NPW products when conditions are expected to meet established criteria posing a threat within their County Warning Area (CWA). *NPW products may also be issued for conditions falling short of established criteria, when in the forecaster’s judgment, lives or property will be at risk.* Weather not meeting hazardous criteria but posing a lesser threat should be addressed in other products such as the Short Term Forecast (AWIPS header NOW) or Special Weather Statement (AWIPS header SPS). See [NWSI 10-517, Multipurpose Weather Products Specification and Eastern Region Supplement 02-2007](#) at: <http://www.werh.noaa.gov/Supplements/final/pdf/ERS0207HSN.pdf> for additional details.

2. **Product Types, Trigger Probabilities and Typical Time Horizons.** Non-precipitation hazards are handled using two different product types – the Hazardous Weather Outlook (HWO) and the NPW. The following trigger probabilities and time horizons apply:

- a. **Outlooks.** Hazards are mentioned in the HWO product affecting all or part of the CWA, when the probability of the hazard meeting/exceeding warning or advisory criteria is 30-49%.
- b. **Watches.** Non-Precipitation watches are issued using the NPW product for hazards expected to affect all or part of the CWA, when there is a 50-79% chance of meeting or exceeding warning or advisory criteria.
- c. **Warnings.** Non-Precipitation warnings are issued using the NPW product for hazards expected to affect all or part of the CWA, when there is an 80% or greater chance of meeting or exceeding warning criteria; this typically occurs 12 to 24 hours prior to criteria being met. In rare situations, when the uncertainty of meeting criteria is still below 80% within 12 hours of storm onset, forecasters should issue either a warning or advisory to end the indecision.

- d. **Advisories.** Advisories for non-precipitation events are issued using the NPW product for those events expected to cause significant inconvenience, and if caution is not exercised, may lead to life-threatening situations over all or part of the forecast area. WFOs should issue advisories when there is an 80% or greater chance of meeting/exceeding local advisory criteria; this typically occurs 12 to 24 hours prior to criteria being met. In rare situations, when the uncertainty of meeting criteria is still below 80% within 12 hours of storm onset, forecasters should issue either a warning or advisory to end the indecision.

3. **Relationship to other Products.**

- a. **Winter Weather Message (WSW).** When precipitation and non-precipitation weather hazards are expected to occur simultaneously within a storm, combined phenomena can be handled using a single product. To decide which product to choose (WSW or NPW) use the following hierarchal rules:
 1. Choose the product type with the highest alert level (warning trumps advisory), and
 2. If all the alert levels are the same, choose the WSW over the NPW.
- b. **Severe Thunderstorm Warning (SVR).** There will be times, particularly in the spring and autumn, when convective cells are embedded in moderately intense synoptic scale wind regimes. While these convective cells may not develop into thunderstorms, their downdrafts are strong enough to push the gradient wind field into advisory or warning categories. In such cases, sound forecaster judgment ultimately determines which product is used (NPW, SVR or SPS).

The following general guidelines (using a time-filter rather than a spatial one) are offered to assist forecasters in handling wind situations only (i.e., no large hail expected).

If the convective wind event is expected to equal or exceed **warning** values for one hour or more, then an NPW (High Wind Warning) is recommended. If less than one hour, a SVR (Severe Thunderstorm Warning) is recommended. (Note: lightning and thunder are NOT criteria for SVR issuances!)

If the convective wind event is expected to fall within the **advisory** category for one hour or more, then an NPW (Wind Advisory) is recommended. If less than one hour, a SPS (no headline required) is recommended.

When short-lived, significant convective gusts > 64 knots are expected within an area already covered by a High Wind Warning, the forecaster should issue a SVR in addition to the NPW to highlight and emphasize the specific high-end threat.

- c. **Air Quality Alerts.** ER WFOs that have event-driven air quality alerts in cooperation with state and local air quality officials will issue these products under the AWIPS header AQA. See [Directive 10-519](#) for details.
4. **Procedures.** ER offices are required to issue watches, warnings and advisories when the probability of meeting an event’s criteria reaches established thresholds. However, warnings and advisories may be issued for conditions falling short of established criteria when, in the forecaster’s judgment, lives or property will be at risk. Forecasters should make every reasonable effort to collaborate with adjacent offices to reach consensus on event type, timing and magnitude.
- a. **Wind.** Local policy should be used to determine whether High Wind Watches, Warnings or Wind Advisories are needed for climatologically windy locations. For example Mt. Washington routinely experiences winds within the advisory category and frequently within the warning category. Some coastal channels, valleys and mountain passes have similar conditions. Locally established criteria *above* regional values based on climatology are acceptable in those geographic areas.

The following ER WFOs will issue “regular” (non-tropical) NPWs for high wind watches/warnings when winds from hurricane/tropical storms move into their area of responsibility: BGM, BTV, BUF, CAE, CLE, CTP, GSP, ILN, PBZ, RAH, RLX and RNK. (When any of these offices are in backup mode for a coastal WFO, the guidance provided in the next paragraph applies.)

Coastal WFOs will issue hurricane/tropical storm watches and warnings for their inland counties via HLSs, for winds of tropical cyclone origin. (Note: Due to their relatively small size, all of Connecticut and Massachusetts are included in hurricane/tropical storm watches and warnings – coastal counties are NHC-issued with inland counties WFO-issued. Thus, WFO ALY will issue regular (non-tropical) NPWs for all of its counties EXCEPT Berkshire, MA and Litchfield, CT, which will be handled via the HLS to issue hurricane/tropical storm watches for winds.)

- b. **Heat.** ER heat index criteria are based on national guidelines associated with recommendations from the 1995 Chicago Heat Service Assessment. Excessive heat products will be issued when criteria are expected to be met for two hours or more. Heat related criteria can be found on the [Eastern Region Heat Thresholds Map](#).
- c. **Freeze and Frost.** Temperatures at or below 32°F can adversely affect outdoor operations (e.g. gardening or construction). The probability of freezing temperatures occurring varies by location and time of year; this variation causes uncertainty as to when a WFO’s freeze/frost program should begin and end. Maps by NWS zones based on National Climatic Data Center files and WFO adjustments are available in Appendix B to help establish coordinated start and stop dates for this program.

The Eastern Region freeze/frost program normally starts on the first day

(median date) of the growing season, as depicted on page B1 of Appendix B. The dates shown on these maps are to be used as a starting point for collaborating normal start/end times of the growing season between adjacent WFOs. Offices may adjust the standard date on either side of listed climatological values to assure consistency across county warning area (CWA) borders and to satisfy user communities.

During certain well-defined weather regimes (e.g., La Nina, El Nino / Southern Oscillation), vegetation may begin growing several weeks ahead of schedule in the spring. Under these circumstances, WFOs have the discretion to begin the growing season early. Seasonal changes from agreed upon climatological dates will be coordinated with MSD and surrounding WFOs at least seven days in advance, to assure program consistency.

The program will remain active in each individual zone until a minimum shelter temperature of 32°F or less, covering half or more of the zone occurs. If no freeze has yet occurred and the date is two weeks beyond the median date of the first fall freeze as shown in Appendix B, go ahead and terminate the growing season. Little to no plant growth can be expected beyond that date.

WFOs will issue a PNS to announce the end of the growing season for each zone or group of zones when this has occurred.

Freeze/frost terminology and definitions are shown in the table below:

Minimum Shelter Temperature (°F)			
	< 28°F	28°F - 32°F	32°F - 36°F
TERMINOLOGY	Hard Freeze	Freeze	Frost (Calm or Light Wind)
PRODUCTS	FREEZE WATCH/WARNING		FROST ADVISORY

- d. **Dense Fog, Smoke, Ashfall, Blowing Dust.** NPWs will be issued by ER offices in accordance with criteria outlined in [NWSI 10-515, WFO Non-Precipitation Products Specification](#).

NPW products are issued using the UGC (Z) format. Updates and cancellations of NPW watches/warnings/advisories shall be accomplished using the NPW product. The UGC cutoff time of the cancellation message shall be one hour.

- 5. **Product Format.** NPWs are segmented products. Format requirements can be found at: [NWSI 10-515, WFO Non-Precipitation Products Specification](#). Some additional notes

are provided below:

- a. **Elevation.** ER WFOs may include elevation in the headline as necessary. If used, elevation information will be included at the end of the headline. For example, “...HIGH WIND WARNING IN EFFECT UNTIL 6 AM TUESDAY ABOVE 1000 FEET...”
- b. **Expiration Statements.** Though not specifically addressed in NWSI 10-515, ER WFOs are encouraged to issue a final statement when a warning or advisory has reached its normal expiration time and has not been previously canceled. A short statement should be issued near the expiration time with the headline “THE WARNING/ADVISORY HAS EXPIRED”, or “THE WARNING/ADVISORY WILL EXPIRE AT...” This provides customers with final notification that the event is indeed over.
- c. **Attribution Statement.** An attribution statement (THE NATIONAL WEATHER SERVICE IN [WFO LOCATION] HAS ISSUED A...) is required for the first issuance of any watch/warning/advisory, to be located between the headline and bullet sections (see examples in [NWSI 10-515, WFO Non-Precipitation Products Specification, Appendix A](#)).
- d. **Bullet Content.** Each bullet of the warning will be concise and restricted to addressing the specific weather expected, timing, preparedness actions to take, etc. As appropriate, include mention of geographic locations where the public will be especially vulnerable (e.g. interstate highways through mountain passes) in the impacts section. The definition of a watch/warning must be included in the precautionary/preparedness section as shown in [NWSI 10-515, WFO Non-Precipitation Products Specification, Appendix A](#). Call-to-action statements should also be included in the precautionary/preparedness bullet.

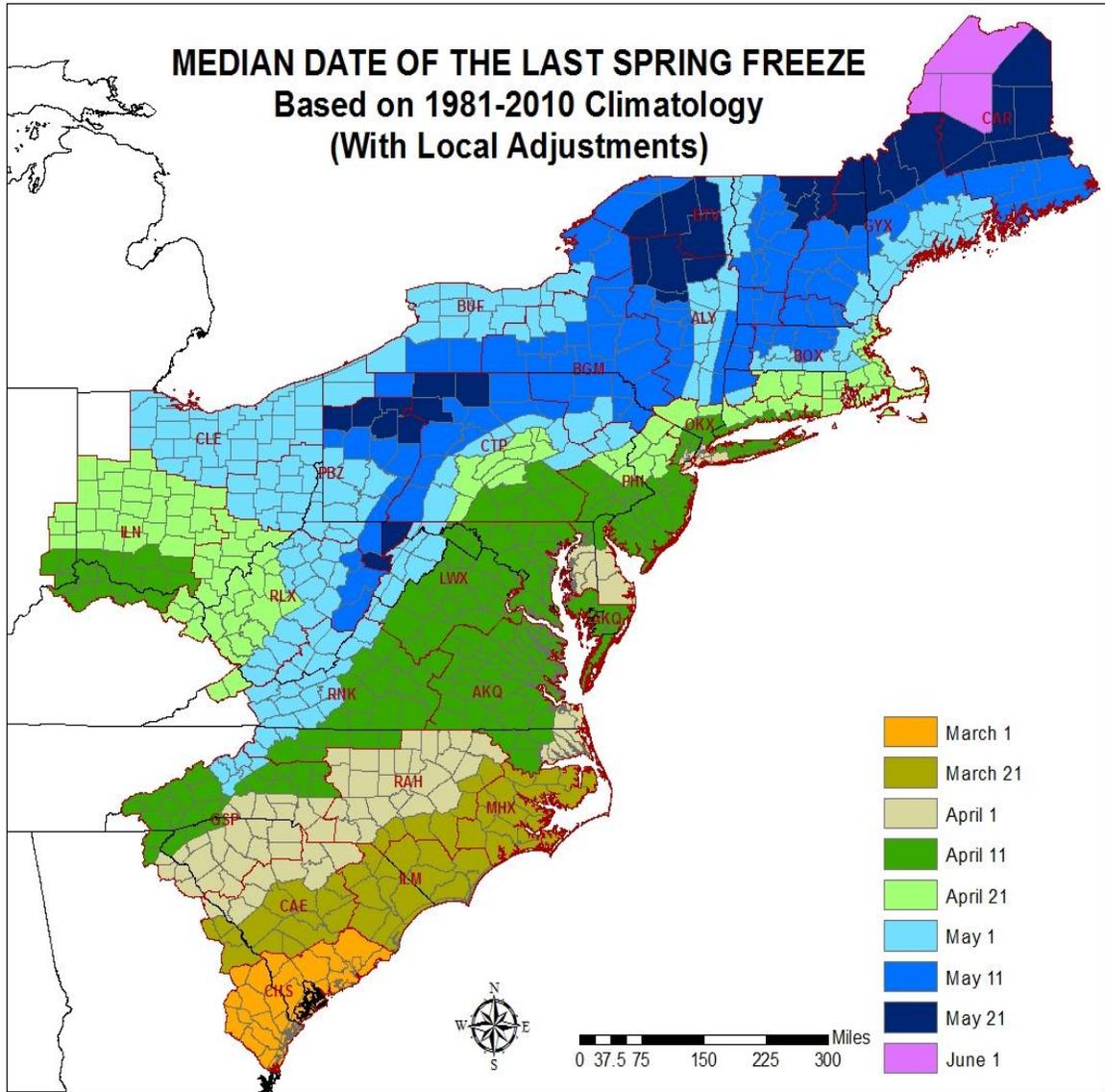
APPENDIX A

Non-Precipitation Event Criteria, Probability Thresholds and Timing

Product Type	PIL	Watch / Warning / Advisory Criteria	Probability Threshold	Typical Time Horizon
High Wind Outlook	HWO	≥ 35 knots (40 mph) sustained for ≥ 1 hr or any duration gust ≥ 50 knots (58 mph)	30-49%	72-168 Hrs
Excessive Heat Outlook	HWO	See heat link below	30-49%	72-168 Hrs
Freeze Outlook	HWO	See box at the bottom of page 5	30-49%	72-168 Hrs
Frost Outlook	N/A	Not Issued	N/A	N/A
Dense Fog/Smoke/Dust/ Volcanic Ash Outlook	N/A	Not Issued	N/A	N/A
High Wind Watch	NPW	≥ 35 knots (40 mph) sustained for ≥ 1 hr or any duration gust ≥ 50 knots (58 mph)	50-79%	24-72 Hrs
Excessive Heat Watch	NPW	See heat link below	50-79%	24-72 Hrs
Freeze Watch	NPW	See box at the bottom of page 5	50-79%	24-72 Hrs
Frost Watch	N/A	Not Issued	N/A	N/A
Dense Fog/Smoke/Dust/ Volcanic Ash Watch	N/A	Not Issued	N/A	N/A
High Wind Warning	NPW	≥ 35 knots (40 mph) sustained for ≥ 1 hr or any duration gust ≥ 50 knots (58 mph)	≥ 80%	12-24 Hrs
Excessive Heat Warning	NPW	See heat link below	≥ 80%	12-24 Hrs
Freeze Warning	NPW	See box on page 5	≥ 80%	12-24 Hrs
Frost Warning	N/A	Not Issued	N/A	N/A
Dense Fog/Smoke/Dust/ Volcanic Ash Warning	N/A	Not Issued	N/A	N/A
Wind Advisory (land)	NPW	27-34 knots (31-39 mph) sustained for ≥ 1 hr or any duration G40-49 knots (46-57 mph)	≥ 80%	12-24 Hrs
Lake Wind Advisory (local office discretion)	NPW	21-29 knots (24-33 mph) sustained for ≥ 1 hr or any duration G18-25 knots (21-28 mph)	≥ 80%	12-24 Hrs
Heat Advisory	NPW	See heat link below	≥ 80%	12-24 Hrs
Freeze Advisory	N/A	Not Issued	N/A	N/A
Frost Advisory	NPW	See box at the bottom of page 5	≥ 80%	12-24 Hrs
Dense Fog/Smoke/Dust/ Volcanic Ash Advisory	NPW	Widespread visibility ≤ ¼ mile	≥ 80%	12-24 Hrs

Heat Threshold Maps: <http://www.werh.noaa.gov/MSD/Resources/Heat/resource.htm>

APPENDIX B



APPENDIX B – CONTINUED

